



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,719	05/26/2000	Herbert M Wildfeuer	2705-108	9916

20575 7590 12/10/2003

MARGER JOHNSON & MCCOLLOM PC
1030 SW MORRISON STREET
PORTLAND, OR 97205

EXAMINER

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
----------	--------------

2644

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

TS

Office Action Summary

Application No.

09/579,719

Applicant(s)

WILDFEUER, HERBERT M

Examiner

Daniel Swerdlow

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-16,18-25,27-31,33-36,38-42 and 44-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-16,18-25,27-31,33-36,38-42 and 44-75 is/are rejected.
- 7) ☒ Claim(s) 61 and 64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The indicated allowability of matter in claims 3, 5, 7, 11, 13, 20, 22, 24, 29, 31, 35, 38, 39, 41, 45 and 47 is withdrawn in view of the newly discovered reference(s) to Legare, Suzuki, Younce and Meek. Rejections based on the newly cited reference(s) follow.

Claim Objections

2. Claim 61 is objected to because of the following informalities: As written, Claim 61 depends from itself. Appropriate correction is required. For the purpose of this Office action, examiner assumes Claim 61 depends from Claim 60.

3. Claim 64 is objected to because of the following informalities: In the first line, the initial letter is omitted from the word "means". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 6 through 9, 12 through 16, 18 through 21, 23, 25, 27 through 30, 33 through 36, 38 through 42, 47, 53 through 55, 70, 71, 74 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante et al. (US Patent 6,011,783) in view of Legare (US Patent 6,400,802) and further in view of Meek (US Patent 5,745,564).

6. Claim 1 claims a method for testing an echo canceller. Interrante discloses a method for measuring the performance of (i.e., testing) an echo canceller (Fig. 1, reference 11; column 1, lines 55-58). Claim 1 further claims the method comprises generating an excitation signal

including a preamble portion and a test portion. Interrante discloses a microprocessor that generates a control word that corresponds to the preamble portion claimed and test data that correspond to the test portion claimed (column 3, lines 9-19). Claim 1 further claims the method comprises encoding the preamble portion with configuration information relating to the echo canceller. Interrante discloses the control word that corresponds to the preamble portion claimed containing (i.e., being encoded with) a timeslot during which the echo canceller will be placed in the performance measurement mode (i.e., configuration) (column 3, lines 16-19, 48-52, 63-66). Claim 1 further claims the method comprises transmitting the excitation signal to the echo canceller. Interrante discloses the control word and test data being received from (i.e., transmitted by) a microprocessor (column 3, lines 9-11, 13-15). Therefore, Interrante anticipates all elements of Claim 1 except measuring a combined loss a predetermined time before receiving the test portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes measuring echo before activating the echo canceller for testing (column 6, lines 49-52; column 9, lines 1-8). It would have been obvious to one skilled in the art at the time of the invention to apply echo premeasurement as taught by Legare to the method taught by Interrante for the purpose of evaluating the same parameters under different conditions. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 1 except using combined loss as a measurement of echo canceller performance. Meek discloses measuring convergence (i.e., echo canceller performance) with combined attenuation (i.e., combined loss). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller performance measurement by combined attenuation as taught by Meek to

Art Unit: 2644

the combination of Interrante and Legare for the purpose of determining echo canceller performance.

7. Claim 2 claims the method of Claim 1 including taking a performance measurement responsive to the preamble portion. As stated above apropos of Claim 1, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses performance measurement being done during a timeslot specified in the control word that corresponds to the preamble claimed (column 3, lines 16-19, 48-52, 63-66). Therefore, the combination makes obvious all elements of Claim 2.

8. Claim 6 claims the method of Claim 1 including encoding a test identifier in the preamble portion. As stated above apropos of Claim 1, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 6.

9. Regarding Claim 7, as shown above apropos of Claim 1, Interrante anticipates all elements of Claim 7 except encoding a test signal identifier in the preamble portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes test initialization (column 4, lines 46-51). It would have been obvious to one skilled in the art at the time of the invention to apply test initialization as taught by Legare to the method taught by Interrante for the purpose of setting up the desired mode of operation.

10. Claim 8 claims the method of Claim 1 including encoding the preamble portion in such a way as to be capable of being differentiated from the test portion. As stated above apropos of Claim 1, the combination of Interrante, Legare and Meek makes obvious all elements of that

Art Unit: 2644

claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiable. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 8.

11. Claim 9 is essentially similar to Claim 1 and is rejected for the same reasons.

12. Claim 12 is essentially similar to Claim 6 and is rejected for the same reasons.

13. Claims 13, 20, 23, 29, 35 and 55 are essentially similar to Claim 7 and are rejected for the same reasons.

14. Claims 14 and 33 are essentially similar to Claim 8 and are rejected for the same reasons.

15. Claim 15 claims the method of Claim 9 including controlling the echo canceller during testing to within a single sample time of the excitation signal. As stated above apropos of Claim 9, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses control of the echo canceller for a specific timeslot (i.e., sample time) (column 3, lines 11-13). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 15.

16. Claim 16 claims the method of Claim 15 including controlling the echo canceller during testing to within 125 microseconds. As stated above apropos of Claim 15, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Therefore, the combination of Interrante, Legare and Meek is shown to make obvious all elements of Claim 16 with the exception of controlling the echo canceller during testing to within 125 milliseconds.

Examiner takes Official Notice of the fact that a time slot on a DS1 signal has a duration of

Art Unit: 2644

1/(8000 x 24) seconds or 5.2 microseconds. It would have been obvious to one skilled in the art at the time of the invention to control the combination of Interrante, Legare and Meek to within 5.2 microseconds for the purpose of selecting a timeslot within a DS1 signal.

17. Claim 18 claims the system of Claim 20 including tail circuit emulating means for generating an echo back signal responsive to the test portion of the excitation signal. As stated above apropos of Claim 20, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses an echo path simulator (Fig. 1, reference 30; column 2, lines 55-61) that corresponds to the tail circuit emulating means claimed and simulates an echo path of the communications network (i.e., generates an echo back signal) (column 3, lines 24-28) in response to test data (column 3, lines 38-41) that corresponds to the test portion claimed. Claim 18 further claims the system includes recording means for recording any received echo signal allowed to pass through the echo canceller. Interrante discloses a test data extraction unit (Fig. 1, reference 40; column 2, lines 62-67) that corresponds to the recording means claimed and stores (i.e., records) echo-cancelled test data (i.e., any received echo signal allowed to pass through the echo canceller) (column 4, lines 1-5). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 18.

18. Claim 19 claims the system of Claim 20 wherein the preamble portion sets timing associated with performance tests defined in ITU-T G.165 and G.168 standards. As stated above apropos of Claim 20, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding test timing instruction in the control word that corresponds to the preamble portion claimed. Therefore, the combination of Interrante, Legare and Meek is shown to make obvious all elements of Claim 19 with the

Art Unit: 2644

exception of using performance tests defined in ITU-T G.165 and G.168 standards. It would have been obvious to one skilled in the art at the time of the invention to apply the use of performance tests defined in ITU-T G.165 and G.168 standards to the combination of Interrante, Legare and Meek for the purpose of conforming to established standards.

19. Claim 21 claims the system of Claim 20 wherein the preamble portion identifies a performance test. As stated above apropos of Claim 20, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 21.

20. Claim 25 claims the system of Claim 23 wherein the decoding means differentiates the preamble portion from the test portion. As stated above apropos of Claim 23, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiated. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 25.

21. Claim 27 claims the system of Claim 29 including tail circuit emulator for generating an echo back signal responsive to the test portion of the excitation signal. As stated above apropos of Claim 29, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses an echo path simulator (Fig. 1, reference 30; column 2, lines 55-61) that corresponds to the tail circuit emulator claimed and simulates an echo path of

Art Unit: 2644

the communications network (i.e., generates an echo back signal) (column 3, lines 24-28) in response to test data (column 3, lines 38-41) that corresponds to the test portion claimed. Claim 27 further claims the system includes a recorder for recording any received echo signal allowed to pass through the echo canceller. Interrante discloses a test data extraction unit (Fig. 1, reference 40; column 2, lines 62-67) that corresponds to the recording means claimed and stores (i.e., records) echo-cancelled test data (i.e., any received echo signal allowed to pass through the echo canceller) (column 4, lines 1-5). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 27.

22. Claim 28 claims the system of Claim 29 wherein the preamble portion sets timing associated with performance tests defined in ITU-T G.165 and G.168 standards. As stated above apropos of Claim 29, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding test timing instruction in the control word that corresponds to the preamble portion claimed. Therefore, Interrante is shown to anticipate all elements of Claim 28 with the exception of using performance tests defined in ITU-T G.165 and G.168 standards. It would have been obvious to one skilled in the art at the time of the invention to apply the use of performance tests defined in ITU-T G.165 and G.168 standards to the combination of Interrante, Legare and Meek for the purpose of conforming to established standards.

23. Claim 30 claims the system of Claim 29 wherein the preamble portion identifies a performance test. As stated above apropos of Claim 29, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding a

Art Unit: 2644

number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 30.

24. Claim 34 claims the echo canceller of Claim 35 wherein the decoder extracts control information from the preamble portion. As stated above apropos of Claim 35, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses control logic that corresponds to the decoder claimed utilizing the control word that corresponds to the preamble portion to determine the time slot for testing (i.e., control information) (column 3, lines 9-13). Claim 34 further claims the controller controls the echo canceller responsive to the control information. Interrante discloses injecting test data into (i.e., controlling) the echo canceller (column 3, lines 13-15) in response to the time slot information that corresponds to the control information claimed. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 34.

25. Claim 36 is essentially similar to Claim 30 and is rejected for the same reasons.

26. Claims 38, 39 and 70 claim a computer readable medium containing instructions that when executed are essentially similar to the method of Claim 1. As stated above apropos of Claim 1, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses the method being implemented by a microprocessor (column 3, lines 9-19) that inherently executes instructions on a computer readable medium. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claims 38, 39 and 70.

27. Claims 40 and 41 claim a computer readable medium containing instructions that when executed are essentially similar to the method of Claim 6. As stated above apropos of Claim 6,

Art Unit: 2644

the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses the method being implemented by a microprocessor (column 3, lines 9-19) that inherently executes instructions on a computer readable medium. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claims 40 and 41.

28. Claim 42 claims a computer readable medium containing instructions that when executed are essentially similar to the method of Claim 8. As stated above apropos of Claim 8, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses the method being implemented by a microprocessor (column 3, lines 9-19) that inherently executes instructions on a computer readable medium. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 42.

29. Claim 47 claims a computer readable medium containing instructions that when executed are essentially similar to the method of Claim 13. As stated above apropos of Claim 13, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses the method being implemented by a microprocessor (column 3, lines 9-19) that inherently executes instructions on a computer readable medium. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 47.

30. Claim 53 claims the method of Claim 5 including encoding the preamble portion in such a way as to be capable of being differentiated from the test portion. As stated below apropos of Claim 5, the combination of Interrante and Legare makes obvious all elements of that claim. Therefore, the combination is shown to make obvious all elements of Claim 53 except measuring a combined loss a predetermined time before receiving the test portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes

Art Unit: 2644

measuring echo before activating the echo canceller for testing (column 6, lines 49-52; column 9, lines 1-8). It would have been obvious to one skilled in the art at the time of the invention to apply echo premeasurement as taught by Legare to the combination of Interrante and Legare for the purpose of evaluating the same parameters under different conditions. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 53 except using combined loss as a measurement of echo canceller performance. Meek discloses measuring convergence (i.e., echo canceller performance) with combined attenuation (i.e., combined loss). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller performance measurement by combined attenuation as taught by Meek to the combination of Interrante and Legare for the purpose of determining echo canceller performance.

31. Claim 54 claims the method of Claim 9 including disabling a processor in the echo canceller responsive to the preamble portion. As stated above apropos of Claim 9, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Legare discloses an automated method for testing a transmission line including echo cancellers that includes disabling the echo canceller (column 8, line 65 through column 9, line 1). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller disabling as taught by Legare to the combination of Interrante, Legare and Meek for the purpose of evaluating the same parameters under different conditions.

32. Claim 71 claims the medium of Claim 39 including encoding information identifying a type of test portion in the preamble portion. As stated above apropos of Claim 39, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3,

Art Unit: 2644

lines 31-33). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 71.

33. Claim 74 claims the medium of Claim 47 including identifying a test to be performed on the echo canceller responsive to the preamble portion. As stated above apropos of Claim 47, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 74.

34. Claim 75 claims the medium of Claim 47 including differentiating the preamble portion from the test portion. As stated above apropos of Claim 47, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiated. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 75.

35. Claims 5, 11, 45, 46, 48, 49, 51, 52, 57 through 61 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante in view of Legare.

36. Regarding Claim 5, as shown above apropos of Claim 1, Interrante anticipates all elements of Claim 5 except encoding instructions in the preamble portion that when executed by the echo canceller result in disabling a processor in the echo canceller. Legare discloses an

Art Unit: 2644

automated method for testing a transmission line including echo cancellers that includes disabling the echo canceller (column 8, line 65 through column 9, line 1). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller disabling as taught by Legare to the method taught by Interrante for the purpose of evaluating the same parameters under different conditions.

37. Claim 11 is essentially similar to Claim 5 and is rejected for the same reasons.

38. Claim 45 claims a computer readable medium containing instructions that when executed are essentially similar to the method of Claim 11. As stated above apropos of Claim 11, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses the method being implemented by a microprocessor (column 3, lines 9-19) that inherently executes instructions on a computer readable medium. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 45.

39. Claim 46 claims the computer readable medium of Claim 45 including identifying a test responsive to the preamble portion. As stated above apropos of Claim 45, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 46.

40. Claim 48 claims the computer readable medium of Claim 45 including differentiating the preamble portion from the test portion. As stated above apropos of Claim 45, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test

Art Unit: 2644

portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiated. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 48.

41. Claim 49 claims the method of Claim 5 including taking a performance measurement responsive to the preamble portion. As stated above apropos of Claim 5, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses performance measurement being done during a timeslot specified in the control word that corresponds to the preamble claimed (column 3, lines 16-19, 48-52, 63-66). Therefore, the combination makes obvious all elements of Claim 49.

42. Claim 51 claims the method of Claim 5 including encoding a test identifier in the preamble portion. As stated above apropos of Claim 5, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 51.

43. Claim 52 claims the method of Claim 5 including encoding the preamble portion in such a way as to be capable of being differentiated from the test portion. As stated above apropos of Claim 5, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiable. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 52.

Art Unit: 2644

44. Claim 57 is essentially similar to Claim 51 and is rejected for the same reasons.

45. Claim 58 claims the method of Claim 11 including identifying a type of test signal responsive to the preamble portion. As stated above apropos of Claim 11, the combination of Interrante and Legare makes obvious all elements of that claim. Therefore, the combination is shown to make obvious all elements of Claim 58 except identifying a type of test signal responsive to the preamble portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes test initialization (column 4, lines 46-51). It would have been obvious to one skilled in the art at the time of the invention to apply test initialization as taught by Legare to the combination of Interrante and Legare for the purpose of setting up the desired mode of operation.

46. Claim 59 claims the method of Claim 11 including differentiating the preamble portion from the test portion. As stated above apropos of Claim 11, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses storage of the control word that corresponds to the preamble portion claimed in a register (Fig. 1, reference 21; column 3, lines 9-11) and storage of the test data that corresponds to the test portion claimed in a shift register (Fig. 1, reference 24; column 3, lines 13-15). As such, the portions are inherently differentiated. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 59.

47. Claim 60 claims the method of Claim 11 including controlling the echo canceller during testing to within a single sample time of the excitation signal. As stated above apropos of Claim 11, the combination of Interrante and Legare makes obvious all elements of that claim. In addition, Interrante discloses control of the echo canceller for a specific timeslot (i.e., sample

Art Unit: 2644

time) (column 3, lines 11-13). Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 60.

48. Claim 61 claims the method of Claim 60 including controlling the echo canceller during testing to within 125 microseconds. As stated above apropos of Claim 60, the combination of Interrante and Legare makes obvious all elements of that claim. Therefore, the combination of Interrante and Legare is shown to make obvious all elements of Claim 61 with the exception of controlling the echo canceller during testing to within 125 milliseconds. Examiner takes Official Notice of the fact that a time slot on a DS1 signal has a duration of $1/(8000 \times 24)$ seconds or 5.2 microseconds. It would have been obvious to one skilled in the art at the time of the invention to control the combination of Interrante and Legare to within 5.2 microseconds for the purpose of selecting a timeslot within a DS1 signal.

49. Claim 72 claims the medium of Claim 45 including identifying a type of test signal responsive to the preamble portion. As stated above apropos of Claim 45, the combination of Interrante and Legare makes obvious all elements of that claim. Therefore, the combination is shown to make obvious all elements of Claim 72 except identifying a type of test signal responsive to the preamble portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes test initialization (column 4, lines 46-51). It would have been obvious to one skilled in the art at the time of the invention to apply test initialization as taught by Legare to the combination of Interrante and Legare for the purpose of setting up the desired mode of operation.

Art Unit: 2644

50. Claims 4, 10, 62 through 65 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante in view of Legare and further in view of Meek and further in view of Tol et al. (US Patent 4,918,685).

51. Claim 4 claims the method of Claim 1 including instructions in the preamble portion that when executed by the echo canceller result in inhibiting adaptation and clearing a register in the echo canceller. As stated above apropos of Claim 1, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 4 with the exception of the test data resulting in inhibiting adaptation and clearing a register in the echo canceller. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the combination of Interrante, Legare and Meek for the purpose of determining if the echo canceller is functioning in the proper manner.

52. Claim 10 is essentially similar to Claim 4 and is rejected for the same reasons.

53. Claim 62 claims the system of Claim 23 wherein the decoding means inhibits adaptation and clears a register in the echo canceller responsive to the preamble portion. As stated above apropos of Claim 23, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be

Art Unit: 2644

delivered to the echo canceller. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 62 with the exception of inhibiting adaptation and clearing a register in the echo canceller. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the combination of Interrante, Legare and Meek for the purpose of determining if the echo canceller is functioning in the proper manner.

54. Claim 63 claims the system of Claim 23 wherein the decoding means disables a processor in the echo canceller responsive to the preamble portion. As stated above apropos of Claim 23, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 63 with the exception of disabling a processor in the echo canceller. Legare discloses an automated method for testing a transmission line including echo cancellers that includes disabling the echo canceller (column 8, line 65 through column 9, line 1). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller disabling as taught by Legare to the combination of Interrante, Legare and Meek for the purpose of evaluating the same parameters under different conditions.

55. Claim 64 claims the method of Claim 23 including controlling the echo canceller during testing to within a single sample time of the excitation signal. As stated above apropos of Claim

Art Unit: 2644

23, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses control of the echo canceller for a specific timeslot (i.e., sample time) (column 3, lines 11-13). Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 64.

56. Claim 65 claims the method of Claim 64 including controlling the echo canceller during testing to within 125 microseconds. As stated above apropos of Claim 64, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Therefore, the combination of Interrante, Legare and Meek is shown to make obvious all elements of Claim 65 with the exception of controlling the echo canceller during testing to within 125 milliseconds. Examiner takes Official Notice of the fact that a time slot on a DS1 signal has a duration of $1/(8000 \times 24)$ seconds or 5.2 microseconds. It would have been obvious to one skilled in the art at the time of the invention to control the combination of Interrante, Legare and Meek to within 5.2 microseconds for the purpose of selecting a timeslot within a DS1 signal.

57. Claim 73 claims the medium of Claim 47 including inhibiting adaptation and clearing a register in the echo canceller. As stated above apropos of Claim 47, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 73 with the exception of inhibiting adaptation and clearing a register in the echo canceller. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It

Art Unit: 2644

would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the combination of Interrante, Legare and Meek for the purpose of determining if the echo canceller is functioning in the proper manner.

58. Claims 44, 50 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante in view of Legare and further in view of Tol.

59. Claim 44 claims the computer readable medium of Claim 45 including inhibiting adaptation and clearing a register in the echo canceller. As stated above apropos of Claim 45, the combination of Interrante and Legare makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 44 with the exception of the test data resulting in inhibiting adaptation and clearing a register in the echo canceller. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the combination of Interrante and Legare for the purpose of determining if the echo canceller is functioning in the proper manner.

60. Claim 50 claims the method of Claim 5 including instructions in the preamble portion that when executed by the echo canceller result in inhibiting adaptation and clearing a register in the echo canceller. As stated above apropos of Claim 5, the combination of Interrante and

Art Unit: 2644

Legare makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 50 with the exception of the test data resulting in inhibiting adaptation and clearing a register in the echo canceller. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the combination of Interrante and Legare for the purpose of determining if the echo canceller is functioning in the proper manner.

61. Claim 56 claims the method of Claim 11 including inhibiting adaptation and clearing a register in the echo canceller responsive to the preamble portion. As stated above apropos of Claim 11, the combination of Interrante and Legare makes obvious all elements of that claim. Further, as stated above apropos of Claim 1, Interrante discloses a control word that corresponds to the preamble portion claimed and causes test data to be delivered to the echo canceller. Therefore, the combination of Interrante and Legare makes obvious all elements of Claim 56 with the exception of inhibiting adaptation and clearing a register in the echo canceller responsive to the preamble portion. Tol discloses echo canceller testing by applying a random data sequence that results in the echo canceller coefficients being adjusted to zero (i.e., inhibiting adaptation and clearing a register) (column 2, lines 23-37). It would have been obvious to one skilled in the art at the time of the invention to apply the random test signal taught by Tol to the

Art Unit: 2644

combination of Interrante and Legare for the purpose of determining if the echo canceller is functioning in the proper manner.

62. Claims 22, 31 and 66 through 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante in view of Legare and further in view of Meek and further in view of Suzuki et al. (US Patent 5,533,121).

63. Claim 22 claims the system of Claim 20 wherein the preamble portion is a correlated PCM sequence capable of being differentiated from the test portion of the excitation signal. As stated above apropos of Claim 20, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, as stated above apropos of Claim 8, the control word disclosed by Interrante that corresponds to the preamble claimed is distinguishable from the test data that corresponds to the test portion claimed. Therefore, the combination of Interrante, Legare and Meek makes obvious all elements of Claim 22 with the exception of the preamble portion being a correlated PCM sequence. Suzuki discloses controlling an echo canceller with a predetermined (i.e., correlated) PCM pattern (i.e., sequence) (column 3, lines 8-16). It would have been obvious to one skilled in the art at the time of the invention to apply controlling an echo canceller with a predetermined PCM pattern as taught by Suzuki to the combination of Interrante, Legare and Meek for the purpose of providing in band control of the echo canceller.

64. Claim 31 is essentially similar to Claim 22 and is rejected for the same reasons.

65. Claim 66 claims the system of Claim 31 including a tail circuit for generating an echo back signal responsive to the test portion of the excitation signal. As stated above apropos of

Art Unit: 2644

Claim 31, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of that claim. In addition, Interrante discloses an echo path simulator (Fig. 1, reference 30; column 2, lines 55-61) that corresponds to the tail circuit claimed and simulates an echo path of the communications network (i.e., generates an echo back signal) (column 3, lines 24-28) in response to test data (column 3, lines 38-41) that corresponds to the test portion claimed. Claim 66 further claims the system includes recording means for recording any received echo signal allowed to pass through the echo canceller. Interrante discloses a test data extraction unit (Fig. 1, reference 40; column 2, lines 62-67) that corresponds to the recording means claimed and stores (i.e., records) echo-cancelled test data (i.e., any received echo signal allowed to pass through the echo canceller) (column 4, lines 1-5). Therefore, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of Claim 66.

66. Claim 67 claims the system of Claim 31 wherein the preamble portion sets timing associated with performance tests defined in ITU-T G.165 and G.168 standards. As stated above apropos of Claim 31, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of that claim. In addition, Interrante discloses encoding test timing instruction in the control word that corresponds to the preamble portion claimed. Therefore, the combination of Interrante, Legare, Meek and Suzuki is shown to make obvious all elements of Claim 67 with the exception of using performance tests defined in ITU-T G.165 and G.168 standards. It would have been obvious to one skilled in the art at the time of the invention to apply the use of performance tests defined in ITU-T G.165 and G.168 standards to the combination of Interrante, Legare, Meek and Suzuki for the purpose of conforming to established standards.

Art Unit: 2644

67. Claim 68 claims the system of Claim 31 wherein the preamble portion identifies a type of test portion. As stated above apropos of Claim 31, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of that claim. In addition, Interrante discloses encoding test timing instruction in the control word that corresponds to the preamble portion claimed.

Therefore, the combination of Interrante, Legare, Meek and Suzuki is shown to make obvious all elements of Claim 68 with the exception of the preamble portion identifying a type of test portion. Legare discloses an automated method for testing a transmission line including echo cancellers that includes test initialization (column 4, lines 46-51). It would have been obvious to one skilled in the art at the time of the invention to apply test initialization as taught by Legare to the combination of Interrante, Legare, Meek and Suzuki for the purpose of setting up the desired mode of operation.

68. Claim 69 claims the system of Claim 31 wherein the preamble portion identifies a performance test. As stated above apropos of Claim 31, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of that claim. In addition, Interrante discloses encoding a number identifying the timeslot to be tested (column 3, lines 31-33). Therefore, the combination of Interrante, Legare, Meek and Suzuki makes obvious all elements of Claim 69.

69. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Interrante in view of Legare and further in view of Meek and further in view of Younce et al. (US Patent 5,274,705). All elements of Claim 24 are comprehended by Claim 23 with the exception of the echo canceller including an H-register and a non-linear processor and the configuration information including *inter alia* instructions related to an adaptation function in the echo

Art Unit: 2644

canceller. As stated above apropos of Claim 23, the combination of Interrante, Legare and Meek makes obvious all elements of that claim. In addition, Interrante discloses the echo canceller having an adaptive filter (i.e., an H-register) (column 1, lines 30-32). Therefore, the combination makes obvious all elements of Claim 24 except a non-linear processor and the configuration information including *inter alia* instructions related to an adaptation function in the echo canceller. Legare discloses an automated method for testing a transmission line including echo cancellers that includes disabling the echo canceller (i.e., instructions related to an adaptation function in the echo canceller) (column 8, line 65 through column 9, line 1). It would have been obvious to one skilled in the art at the time of the invention to apply echo canceller disabling as taught by Legare to the method taught by Interrante for the purpose of evaluating the same parameters under different conditions. Therefore, the combination makes obvious all elements of Claim 24 except a non-linear processor. Younce discloses an echo canceller including a non-linear processor (Fig. 5, reference NLP; column 1, lines 45-55). It would have been obvious to one skilled in the art at the time of the invention to apply a non-linear processor as taught by Younce to the combination of Interrante, Legare and Meek for the purpose of removing low-level residual echo.

Response to Arguments

70. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2644

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 703-305-4088. The examiner can normally be reached on Monday through Friday between 8:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

ds


XU MEI
PRIMARY EXAMINER